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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/525,122	03/20/2006	Sang-In Lee	A-71721/MSS (463035-814)	2947
32940 7590 05/07/2007 DORSEY & WHITNEY LLP 555 CALIFORNIA STREET, SUITE 1000 SUITE 1000 SAN FRANCISCO, CA 94104			EXAMINER ROMAN, ANGEL	
			ART UNIT 2812	PAPER NUMBER
			MAIL DATE 05/07/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/525,122

Applicant(s)

LEE ET AL.

Examiner

Angel Jr Roman

Art Unit

2812

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 February 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 February 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: In page 3, line 24 --be-- should be inserted between the words "can" and "any".

Appropriate correction is required.

Information Disclosure Statement

2. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609.04(a) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-9, 12-16 and 19-23 are rejected under 35 U.S.C. 102(e) as being anticipated by Baum et al. U.S. Patent 6,869,638 B2 filed 09/18/2001.

Regarding claims 1, 12 and 19, Baum et al. discloses a method of growing a metal silicate film on a substrate to form a gate dielectric film (see Abstract) or capacitor (see column 1, lines 15-47) by atomic layer deposition (see column 14, lines 38-40) comprising: (i) introducing a metal organic precursor and a silicon organic precursor into a reaction chamber containing a substrate (see column 14, lines 47-48); (ii) purging the reaction chamber; (iii) introducing ozone into the reaction chamber (see column 15, lines 54-57); (iv) purging the reaction chamber; (v) repeating steps (i), (ii), (iii) and (iv) until a film of a target thickness is achieved on the substrate (see column 14, lines 38-50); and placing a conductive film over the dielectric film (see figure 1).

Regarding claims 2 and 13, Baum et al. discloses the substrate being silicon (see column 2, lines 30-35).

Regarding claims 3, 14 and 21, Baum et al. discloses the metal in the metal organic precursor being a Group 4 metal (see column 15, line 62).

Regarding claim 4, Baum et al. discloses the metal in the metal organic precursor being hafnium (see column 15, line 62).

Regarding claim 5, Baum et al. discloses the metal organic precursor being a linear, branched and cyclic alkyl (see Abstract).

Regarding claim 6, Baum et al. discloses the metal organic precursor being a metal alkyl amide (see Abstract).

Regarding claims 7, 15 and 22, Baum et al. discloses the silicon organic precursor being a silicon alkyl amide (see Abstract).

Regarding claim 8, Baum et al. discloses the metal organic precursor being a metal alkoxide (see column 18, lines 20-31).

Regarding claims 9, 16 and 23, Baum et al. discloses the metal organic precursor and the silicon organic precursor being mixed, volatilized, and introduced into the chamber as a mixed gas (see column 15, lines 62-65).

Regarding claim 20, Baum et al. discloses the substrate being one of the two electrodes (see figure 1).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 2812

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 10, 11, 17, 18, 24 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baum et al. U.S. Patent 6,869,638 B2 filed 09/18/2001 in view of Metzner et al. U.S. Patent Application publication 2003/0232506 A1 with effective filing date of 06/14/2002.

Regarding claims 10, 11, 17, 18, 24 and 25 Baum et al. is applied as above but lacks anticipation on disclosing how the precursors are volatilized and introduced into the reactor chamber, e.g. concurrently or consecutively. Metzner et al. discloses introducing precursors concurrently or consecutively (see paragraph [0072]). It would have been obvious to a person having ordinary skills in the art at the time the invention was made to introduce the precursors in the primary reference of Baum et al. concurrently or consecutively as disclosed in Metzner et al. in order to form a desired metal oxide layer.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Lee et al. (column 5, lines 1-22) discloses a method of forming a metal silicate using atomic layer deposition.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Angel Jr Roman whose telephone number is (571) 272-6369. The examiner can normally be reached on IFP Mo-Fr 6am-3pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Lebentritt can be reached on (571) 272-1873. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2812

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AR
April 30, 2007


MICHAEL LEBENTRITT
SUPERVISORY PATENT EXAMINER